
शिशुओं और पूर्वस्कूली बच्चों के लिए
प्रोटीन आधिक्य पूरक भोजन —
विशिष्टि

(पहला पुनरीक्षण)

**Protein-Rich Food Supplements for
Infants and Pre-School Children —
Specification**
(First Revision)

ICS 67.100.99

© BIS 2017



भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली-110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002
www.bis.org.in www.standardsbis.in

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Ready-to-Eat Foods and Specialized Products Sectional Committee had been approved by the Food and Agriculture Division Council.

Since the supply of milk proteins in the country is limited, considerable efforts are being made to utilize vegetable proteins to fight protein malnutrition. Consequently, a number of protein-rich foods are now being marketed. It, has, therefore, become necessary to prescribe minimum requirements for protein-rich foods, for which a series of optimum utilization of edible oilseed flours, guide the manufacturers in formulating their products, and ensure desired performance levels for consumers.

This standard prescribes the specifications for protein-rich food supplements for infants and preschool children between 18 months and 5 years of age. This standard does not define any particular composition of protein-rich food supplements for infants and preschool children. With a view to encouraging new formulations for these food supplements, this standard specifies only the minimum level of nutrients in the end product and the quality of protein. The levels of nutrients, it was felt, should be such as to meet at least one-third of the daily requirements of a weaned child regarding protein and calories, while meeting the entire daily requirements of vitamins in 100 g of the food.

This standard was first issued in 1973 and this revision is being undertaken to update the requirements of protein and iron and to incorporate HPLC method for determination of aflatoxin content.

While formulating this standard, necessary consideration has been given to the relevant rules prescribed by the Government of India under the *Food Safety and Standards Act, 2006* and the Rules framed thereunder and the *Legal Metrology (Packaged Commodities) Rules, 2011*. This standard is however, subject to the restriction imposed under these, wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

PROTEIN-RICH FOOD SUPPLEMENTS FOR INFANTS AND PRE-SCHOOL CHILDREN — SPECIFICATION

(*First Revision*)

1 SCOPE

This standard prescribes the requirements and the methods of sampling and tests for protein-rich food supplements for infants and preschool children between 18 months and 5 years of age.

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards:

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Type Tests — These tests are to prove the conformity to the requirements of this standard. They are intended to approve the formulation and quality of the product at least in the beginning of marketing and/or certification. These tests may also be conducted periodically to supplement the routine tests or whenever the basic formula is changed (*see* 4.2).

3.2 Routine Tests — These tests are carried out on each lot to check the essential requirements that are likely to vary during production (*see* 4.3).

4 REQUIREMENTS

4.1 Raw Materials

Raw materials and other ingredients used in the manufacture of protein-rich food supplements for infants and pre-school children shall be of good quality. In particular edible oilseed flour(s), if used, shall conform to IS 4875 (for groundnut flour), IS 4876 (for cottonseed flour) and IS 7835, IS 7836 or IS 7837 (for edible soya flour).

4.1.1 Conditions of Manufacture

The protein-rich food supplements for infants and pre-school children shall be manufactured, packed, stored and distributed in premises maintained under hygienic conditions (*see* IS 2491).

4.2 Type Tests

4.2.1 Protein

The levels of proteins in protein rich foods for infants and preschool children shall not be less than 15 percent (*see* Annex C of IS 4684) and the quality of protein (protein efficiency ratio) shall not be less than 70 percent of that of casein (*see* IS 7481).

4.2.2 Aflatoxin

The protein-rich food supplements for infants and preschool children shall not have aflatoxin content, more than 30 µg/kg of the food, when tested according to the method prescribed in IS 16284.

4.2.3 Gossypol

The protein-rich food supplements for infants and pre-school children shall not have free gossypol content more than 0.065 percent by mass and total gossypol content more than 1.10 percent by mass, when tested according to the method prescribed in Annex B and Annex C of IS 4876.

4.2.4 Urease Activity

The protein-rich food supplements for infants and pre-school children shall not show a change in pH by more than 1.0, when determined by the method given in Annex B of IS 7835.

NOTE — Aflatoxin content, gossypol content and urease activity shall be determined only, if flours of groundnut, cottonseed and soya respectively have been added to the protein-rich food supplements for infants and pre-school children.

4.2.5 The protein-rich food supplements for infants and pre-school children shall also comply with the requirements given in Table 1.

Table 1 Requirements for Vitamins per 100 g
(Clause 4.2.5)

Sl No. (1)	Characteristics (2)	Requirement (3)	Method of Test, Ref to (4)
i)	Vitamin C, mg, <i>Min</i>	40	IS 5838
ii)	Vitamin A, µg, <i>Min</i>	200	IS 5886
iii)	Vitamin D, µg, <i>Min</i>	3.5	IS 5835
iv)	Thiamine, mg, <i>Min</i>	0.5	IS 5398
v)	Riboflavin, mg, <i>Min</i>	0.5	IS 5399
vi)	Niacin, mg, <i>Min</i>	5	IS 5400
vii)	Folate, µg, <i>Min</i>	50	IS 7234
viii)	Vitamin B ₁₂ , µg, <i>Min</i>	0.5	IS 7529
ix)	Calcium, mg, <i>Min</i>	300	IS 5949
x)	Iron, mg, <i>Min</i>	6	Annex D of IS 14433

NOTE — The Indian Standards on methods for test in col 4 from Sl No. (iii) to (viii) are given for guidance only. As there is no other suitable and easily workable method at present, the manufacturers would be required to maintain a record showing the quantity of these added vitamins, added to each batch.

4.3 Routine Tests

4.3.1 Description

The protein-rich food supplements for infants and pre-school children shall be uniform, that is reasonably free from lumps and brown or black specks. They shall also be free from extraneous matter, harmful material and bacteria.

4.3.2 Flavour

The flavour of the protein-rich food supplements for infants and pre-school children in the dry condition or on reconstitution shall be fresh and pleasant. These food supplements shall not have a rancid taste or musty odour. Preservatives, flavours and edible colours permitted under the *Food Safety and Standards (Food Product Standards and Food Additives) Regulations*, 2011 may be added.

Table 2 Requirements for Routine Tests
(Clause 4.3.3)

Sl No. (1)	Characteristics (2)	Requirement (3)	Method of Test, Refer to (4)
i)	Protein, percent by mass, <i>Min</i>	15	Annex C of IS 4684
ii)	Moisture, percent by mass, <i>Min</i>	8.0	Annex B of IS 4684
iii)	Fat, percent by mass, <i>Min</i>	7.5	Annex F of IS 4684
iv)	Total ash, percent by mass, <i>Max</i>	7.5	Annex D of IS 14433
v)	Acid insoluble ash, percent by mass, <i>Max</i>	0.05	Annex E of IS 4684
vi)	Crude fibre (on dry basis), percent by mass, <i>Max</i>	1.0	Annex H of IS 4684
vii)	Bacterial count, per g, <i>Max</i>	50 000	IS 5402
viii)	Coliform count, cfu per g, <i>Max</i>	10	IS 5401 (Part 1)

4.3.3 The product shall also conform to the requirements given in Table 2.

4.4 Hygienic Conditions

The protein-rich food supplements for infants and pre-school children shall be manufactured, packed, stored and distributed under hygienic conditions in licensed premises (*see* IS 2491).

5 PACKING AND MARKING

5.1 Packing

The protein-rich food supplements shall be packed in clean and sound containers or in a food grade flexible pack made from a film or combination of any of the substrates made of board, paper, polyethylene, polyester metalized film or aluminium foil in such a way as to protect it from deterioration. The packages shall be hermetically sealed. In case of plastic material, only food grade plastic (*see* IS 10171) shall be used. The product shall be packed in quantities as stipulated under the provisions of the *Legal Metrology (Packaged Commodities) Rules*, 2011.

5.2. Marking

The following particulars shall be marked or labelled on each container:

- Calories and protein per 100 g;
- Name of the material and the trade-name or brand-name, if any;
- Name and address of the manufacturer;
- Batch or code number;
- Net quantity;
- Directions for use and the percentage of the daily requirements of nutrients which the supplement provides;
- The words 'Best before.....' (Month and year to be indicated); and
- Any other details required under *Food Safety and Standards (Packaging and Labelling) Regulations*, 2011 and *Legal Metrology (Packaged Commodities) Rules*, 2011.

5.2.1 BIS Certification Marking

The product may also be marked with the Standard Mark.

5.2.1.1 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the license for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6 SAMPLING

Representative samples of the material shall be drawn and tested for conformity to this standard as prescribed in Appendix A of IS 9487.

7 TESTS

7.1 Tests shall be carried out as specified in 3.2, Table

1 and Table 2.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and reagent grade water (*see* IS 1070) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities, which affect the results of analysis.

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
1070 : 1992	Reagent grade water — Specification (<i>third revision</i>)	5838 : 1970	Methods for estimation of vitamin C in foodstuffs
2491 : 2013	Food hygiene — General principles — Code of practice (<i>third revision</i>)	5886 : 1970	Methods for estimation of carotenes and vitamin A (retinol) in foodstuffs
4684 : 1975	Specification for edible groundnut flour (expeller pressed) (<i>first revision</i>)	5949 : 1990	Methods for volumetric determination of calcium and magnesium using EDTA (<i>second revision</i>)
4875 : 1975	Specification for edible groundnut flour (solvent extracted) (<i>first revision</i>)	7234 : 1974	Method for estimation of folic acid in foodstuffs
4876 : 1986	Specification for edible cottonseed flour (solvent extracted) (<i>first revision</i>)	7481 : 1974	Method for determination of protein efficiency ratio (PER)
5398 : 1969	Methods for estimation of thiamine (vitamin B ₁) in foodstuffs	7529 : 1975	Method for estimation of vitamin B ₁₂ in foodstuffs
5399 : 1969	Methods for estimation of riboflavin (vitamin B ₂) in foodstuffs	7835 : 2013	Specification for edible medium-Fat soya flour (<i>first revision</i>)
5400 : 1969	Methods for estimation of nicotinic acid (niacin) in foodstuffs	7836 : 2013	Specification for edible low-Fat soya flour (<i>first revision</i>)
5401 (Part 1) : 2012/ISO 4832 : 2006	Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of coliforms: Part 1 Colony count technique (<i>second revision</i>)	7837 : 2013	Specification for edible full-Fat soya flour (<i>first revision</i>)
5402 : 2012/ISO 4833 : 2003	Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony count technique at 30°C (<i>second revision</i>)	14433 : 2007	Infant milk substitutes — Specification (<i>first revision</i>)
5835 : 1970	Method for estimation of vitamin D in foodstuffs	16287 : 2014	Foodstuffs — Determination of aflatoxin B ₁ , and the total content of aflatoxins B ₁ , B ₂ , G ₁ and G ₂ in cereals, nuts and derived products — High-performance liquid chromatographic method

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc No.: FAD 24 (2510).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones : 2323 0131, 2323 3375, 2323 9402

Website: www.bis.org.in

Regional Offices:

Telephones

Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	{ 2323 7617 2323 3841
Eastern	: 1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi KOLKATA 700054	{ 2337 8499, 2337 8561 2337 8626, 2337 9120
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg, CHANDIGARH 160019	{ 26 50206 265 0290
Southern	: C.I.T. Campus, IV Cross Road, CHENNAI 600113	{ 2254 1216, 2254 1442 2254 2519, 2254 2315
Western	: Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	{ 2832 9295, 2832 7858 2832 7891, 2832 7892

Branches: AHMEDABAD. BENGALURU. BHOPAL. BHUBANESHWAR. COIMBATORE. DEHRADUN. DURGAPUR. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. JAMSHEDPUR. KOCHI. LUCKNOW. NAGPUR. PARWANOO. PATNA. PUNE. RAIPUR. RAJKOT. VISAKHAPATNAM.

Published by BIS, New Delhi

AMENDMENT NO. 1 SEPTEMBER 2018
TO
IS 7021 : 2017 PROTEIN-RICH FOOD SUPPLEMENTS
FOR INFANTS AND PRE-SCHOOL CHILDREN —
SPECIFICATION

(First Revision)

(Page 1, clause 4.2.2, line 4) — Substitute ‘IS 16287’ for ‘IS 16284’.

[Page 2, Table 2, Sl No. ii), col 2] — Substitute ‘Max’ for ‘Min’.

(FAD 24)

Publication Unit, BIS, New Delhi, India